

51843 to 51855—Continued.

51852. *SAUSSUREA LAPPA* (Decaisne) C. B. Clarke. Asteraceæ.

The aromatic root of this tall perennial, native to Kashmir, at altitudes of 8,000 to 12,000 feet, is of medicinal value. The annual export has been as much as 1,000 tons, a large portion used for incense, further as an insecticide, keeping moths from cloth. The leaves are used as an insecticide as emballage for shawls. (Adapted from Mueller, *Select Extra-Tropical Plants*, p. 492.)

51853. *VIBURNUM* sp. Caprifoliaceæ.

[Received without notes.]

Viburnums are among our best ornamental shrubs, and this may be useful in breeding work if not for its own intrinsic value.

51854. *VIOLA SERPENS* Wall. Violaceæ.

Violet.

An herbaceous perennial with lilac-colored flowers found in woods above 7,000 feet altitude in the hilly districts throughout India and in China and Java; glabrous or with scattered hairs. The stems are short but distinct, covered with withered scales, and often producing runners. The broadly ovate, deeply cordate leaves are 1 to 2 inches long. (Adapted from Collett, *Flora Simlensis*, p. 40.)

51855. *VIOLA* sp. Violaceæ.

[Mixed seed, received without notes.]

51856 to 51869. *LOTUS* spp. Fabaceæ.

From Madrid, Spain. Seeds presented by the Botanic Garden. Received November 26, 1920.

51856. *LOTUS ANGUSTISSIMUS* L.

A plant with upright, sometimes decumbent to ascending, slender stems. The dark-green leaves are short stalked with small leaflets, the lower rounded obovate, and the upper lanceolate to linear. The golden-yellow flowers are often reddish at the tips. Found in meadows, on roadsides, on the less salty of the salt-pasture formations with *Cynodon dactylon*, on moist salt meadows rich in humus, and also in carbonates and sulphate salts, from the Mediterranean region to Hungary and southern France. (Adapted from Ascherson and Graebner, *Synopsis der Mitteleuropäischen Flora*, vol. 6, abt. 2, p. 685, and Hayek, *Die Pflanzendecke Oesterreich-Ungarns, Leipzig and Vienna*, pp. 159, 494.)

51857. *LOTUS ANGUSTISSIMUS GRACILIS* (Waldst. and Kit.) Aschers. and Graebn.

This plant differs from the species in its ascending or partly decumbent stem 1 to 3 decimeters long, its broader, elliptic, acute stipules, and its shorter peduncles. It is also less abundant. (Adapted from Ascherson and Graebner, *Synopsis der Mitteleuropäischen Flora*, vol. 6, abt. 2, p. 685.)

51858. *LOTUS ARABICUS* L.

A kind of vetch indigenous to Egypt, where it grows along the bed of the Nile, especially above Luxor. During the first Sudanese war this species of lotus was a continual source of trouble to the military authorities, since it was frequently cropped by the transport animals at the various encampments and led to a high mortality among them. By a chemical investigation it was ascertained that the toxicity was due to the production of prussic acid when the plant was moistened with water, as the result of the interaction of a glucosid and an enzym occurring together in its cells. The glucosid (lotusin) was obtained in a pure state and shown to be a derivative of a yellow coloring matter (lotoflavin), the latter in addition to dextrose and prussic acid being produced when lotusin is hydrolyzed, either by the action of the enzym (lotase) present in the plant or by boiling it with dilute mineral acids.

The Arabs are aware that *Lotus arabicus*, which is called "klutcher" in the vernacular, is poisonous only in the immature condition and that when allowed to ripen until seeds have formed it becomes innocuous and is then available as an excellent fodder. A chemical investigation of the fully ripe plants showed that they contained none of the poison-